



International Civil Aviation Organization

NORTH AMERICAN, CENTRAL AMERICAN AND CARIBBEAN OFFICE

**Second Meeting of the North Atlantic/Caribbean ATS Routes Working Group
(NAT/CAR WG/2)**

(Miami, Florida, USA, 8-10 May 2007)

NAT/CAR WG/2 - WP/06

22/04/07

Agenda Item 1: WATRS Plus Project Implementation Issues

**PROPOSALS FOR THE AMENDMENT OF CAR AND NAT REGIONAL
SUPPLEMENTARY PROCEDURES (SUPPS) (Doc 7030)**

(Presented by the United States)

SUMMARY

The appendices to this WP contain draft amendments to the Caribbean (CAR) and North Atlantic (NAT) Regional Supplementary Procedures (Doc 7030). These drafts contain proposed criteria for the implementation of 50 NM lateral separation in designated airspace of the CAR and NAT regions. The group is requested to review and endorse the draft amendments in preparation for formal ICAO distribution to States and Organizations.

1. Discussion

1.1 The airspace proposed for introduction of 50 NM lateral separation falls within both the Caribbean (CAR) and North Atlantic (NAT) ICAO regions. The appendices to this WP contain proposed revisions for both the CAR and NAT Regional Supplementary Procedures (SUPPS).

1.2 **Appendix A** contains a draft proposal for the amendment of CAR SUPPS to enable 50 NM lateral separation to be implemented in the WATRS Plus Control Areas (CTAs) and to enable New York Oceanic FIR/CTA airspace outside WATRS to be utilized as transition airspace. Appendix A, paragraph 5.1.1 lists the specific CTAs involved.

1.2.1 The draft CAR SUPPS amendment reflects content and wording endorsed in North Atlantic System Planning Group (NAT/SPG) sub-group meetings held in March and April 2007. See paragraph 3.2 below.

1.3 **Appendix B** contains a draft proposal for the amendment of the NAT SUPPS to enable 50 NM lateral separation to be implemented in WATRS airspace in the NAT region and to enable New York Oceanic FIR/CTA airspace outside WATRS in the NAT region to be utilized as transition airspace.

2. Amendment Processing

2.1 ICAO Headquarters has tasked the ICAO North American, Central American and Caribbean Office (NACC) with distributing the CAR and NAT amendment proposals for State and Organization comment. The CAR and NAT proposals are planned to be distributed in a single document. NACC plans to distribute the document for comment in September 2007. NACC is coordinating this effort with the ICAO European/North Atlantic (EUR/NAT) Office.

3. Coordination Efforts to Date

3.1 ICAO NACC, ICAO EUR/NAT and ICAO Headquarters specialists provided input for the development of the CAR and NAT draft amendments.

3.2 In their meetings in March and April, the NAT Air Traffic Management Group (ATMG) and the NAT Safety Analysis & Reduced Separation Implementation Group (SARSIG) reviewed and endorsed the draft amendment to the NAT SUPPS. In addition, key members of the NAT Operations/Airworthiness Group also reviewed and endorsed the draft NAT SUPPS amendment. The draft amendment will also be presented to the NAT Implementation Management Group (IMG) meeting, 24-27 April. The NAT IMG position on the amendments will be reported at NAT/CAR ATS WG/2.

4. Actions

4.1 The Group is invited to endorse the draft revision to CAR Regional Supplementary Procedures and endorse progressing it through the Caribbean WG/1 and the Central Caribbean Directors of Civil Aviation (C/CAR DCA/9) meetings scheduled for June and July, respectively.

APPENDIX A

WATRS PLUS PROJECT PROPOSAL FOR AMENDMENT OF CAR REGIONAL SUPPLEMENTARY PROCEDURES (SUPPS) (Doc 7030)

DRAFT 21 APRIL 2007

- a) **Proposed by:** **The United States of America**
- b) **Proposed amendment:**

“Amend the SUPPs in the CAR Region as shown below:

5.0 SEPARATION OF AIRCRAFT

5.1 Lateral separation

(A2 – 5.1.1; A11 – 2.7 and ATT B; A6, Part I – 7.2.2 and Chapter 3, Note 1; A6, Part II – 7.2.2 and Chapter 3, Note 1; P-ATM – 2.4)

5.1.1 *Minimum lateral separation shall be:*

- 1) 93 km (50 NM) between Operators and aircraft authorized RNP 10 or RNP 4 by the State of the Operator or the State of Registry, as appropriate, operating on oceanic routes or areas:
 - a) Within the control area of the San Juan FIR, the Atlantic portion of the Miami Oceanic control area or the West Atlantic Route System (WATRS);
 - b) Outside WATRS within the control area of the New York Oceanic FIR except, minimum lateral separation between aircraft transitioning from airspace in the New York Oceanic FIR/CTA to MNPS airspace shall be 110 km (60 NM);

Note: RNP 10 is the minimum navigation specification for the application of 93 km (50 NM) lateral separation. See other provisions for application of 93 km (50 NM) lateral separation in paragraph 5.1.2.

- 2) 60 NM between aircraft which meet the North Atlantic minimum navigation performance specifications (MNPS) which, while operating in the control area of San Juan FIR control area, are in transit to or from the NAT MNPS airspace;

Note.— The NAT MNPS are set forth in NAT SUPPS, Section 3.0. NAT MNPS airspace is identified in NAT SUPPS, 3.2.

- 3) 90 NM between aircraft not authorized RNP 10 or RNP 4 operating between the United States, Canada or Bermuda and points in the CAR Region in the control areas of San Juan and New York Oceanic FIRs and the Atlantic portion of the Miami Oceanic control area;
- 4) 100 NM west of 60W (only in Oceanic areas) between aircraft not covered in 1) and 2) above, and between aircraft in the control area of Piarco FIR west of 55W;

- 5) 120 NM between aircraft operating east of 60W in the New York Oceanic FIR, and between aircraft in the control area of Piarco FIR east of 55W;

except that lower minima as detailed in 5.4.1.1.2 of the PANS ATM may be applied, or further reduced in accordance with 5.11, where the conditions specified in the relevant PANS ATM provisions are met (see 6.4).

5.1.2 For 93 km (50 NM) lateral separation to be applied between aircraft authorized RNP 10 or RNP 4 in the oceanic control areas listed in paragraph 5.1.1 operators and civil aviation authorities must follow the provisions listed below.

5.1.2.1 All operators authorized RNP 10 or RNP 4 shall include the letter “R” and the letter “Z” in Item 10 of the Filed Flight Plan and NAV/RNP10 or NAV/RNP4, as appropriate, in Item 18.

5.1.2.2 States shall ensure, when granting authorization for RNP 10 or RNP 4, that Operators establish programmes to mitigate the occurrence of large lateral track errors due to equipment malfunction or operational error.

Note.— The ICAO Performance Based Navigation (PBN) Manual Volume I – Concept and Implementation Guidance (Doc 9613) provides guidance on aircraft, operations and maintenance programmes for the initial achievement and continued compliance with the authorized navigation specification. Doc 9613 will be supplemented and updated as required and as new material becomes available.

5.1.2.3 A target level of safety (TLS) of 5×10^{-9} fatal accidents per flight hour per dimension shall be established for route systems operating a 93 km (50 NM) lateral separation minimum. The safety level of such airspace shall be determined by an appropriate safety assessment.

Note — Detailed guidance material on conducting safety assessments is contained in the Manual on Airspace Planning Methodology for the Determination of Separation Minima (Doc 9689) and the Safety Management Manual (Doc 9859).

5.1.2.4 Adequate monitoring of flight operations shall be conducted to provide data to assist in the assessment of the achieved lateral navigation performance of the population in relation to the lateral separation minimum. These data shall include statements of the core of the lateral navigational performance, the proportion greater than one-half the lateral separation minimum and the proportion in the vicinity of the adjacent route centreline as these measures have been shown to have a direct link to the risk of collision. A safety assessment shall be carried out periodically, based on the data collected, to confirm that the safety level continues to be met. Data shall include operational errors due to all causes.

Note.— Monitoring will be conducted in accordance with the appropriate guidance material issued by ICAO. Detailed guidance is contained in the Manual on Airspace Planning Methodology for the Determination of Separation Minima (Doc 9689) and the Safety Management Manual (Doc 9859).

- c) **Intended date of implementation:** 5 June 2008
- d) **Proposal circulated to the following States and international organizations:**
- e) **Originator’s reasons for amendment:**

On 5 June 2008, the United States, in coordination with States providing Air Traffic Services in the Caribbean and North Atlantic and with international organizations, is planning to implement a

redesigned route structure in conjunction with a reduction of lateral separation within the control area of the San Juan FIR, the Atlantic portion of the Miami Oceanic control area and the West Atlantic Route System (WATRS). 93 km (50 NM) lateral separation is planned to be applied between aircraft authorized Required Navigation Performance 10 (RNP 10) or RNP 4 by the State of Registry or State of Operator, as appropriate, operating on oceanic routes or areas. (Guidance and direction for RNP authorization is provided in ICAO Annex 6, Parts I and II, paragraph 7.2 (Navigation equipment). Guidance on the application of 93km (50NM) lateral separation between aircraft authorized RNP 10 or RNP 4, is provided in ICAO Annex 11, Attachment B).

Reduction of lateral separation from 167 km (90 NM) to 93 km (50 NM) will enable an increase of approximately 40% in the number of routes and associated altitudes. Increased availability of routes and altitudes will enable more aircraft to operate on time and fuel efficient routes and altitudes thereby reducing fuel burn and engine emissions. In addition, en route capacity and Air Traffic Management (ATM) flexibility will be enhanced.

Analysis of aircraft types operating in the oceanic areas affected by this initiative indicates that approximately 90% of the flights conducted in the airspace are now flown by aircraft meeting RNP 10 or RNP 4 standards without modification.

Aircraft that are not authorized RNP 10 or RNP 4 (Non-RNP 10 aircraft) will be allowed to continue to file any route at any altitude in areas listed above. They will be cleared to operate on their preferred routes and altitude as traffic permits and will be separated from other aircraft by the existing 167 km (90 NM) standard. The FAA enhanced air traffic control automation system, Ocean21, will aid the controller in applying the applicable separation standard between aircraft authorized RNP 10 or RNP 4, and Non-RNP 10 aircraft.

93 km (50 NM) lateral separation has been applied between operators/aircraft authorized RNP 10 or RNP 4 since 1998 in Pacific oceanic areas. It is also currently applied in the European-South American Corridor; on routes between Santiago, Chile and Lima, Peru; on routes connecting Australia, Asia, the Middle East and Europe south of the Himalayas and, it is planned for trans-Africa routes. Project planners will apply the experience gained in these operations.

f) **Secretariat comments:**

APPENDIX B

WATRS PLUS PROJECT PROPOSAL FOR AMENDMENT OF NAT REGIONAL SUPPLEMENTARY PROCEDURES (SUPPS) (Doc 7030)

EXTRACTED FROM 13 APRIL 2007 NAT SARSIG REPORT

(Serial no.:

a) **Proposed by:** The United States of America

b) **Proposed amendment:**

“**Amend** the SUPPs in the **NAT Region** as shown below:

4.0 REQUIRED NAVIGATION PERFORMANCE (RNP)

4.1 Means of Compliance

(A2 – 5.1.1; A11 – 2.7 and ATT B; A6, Part I – 7.2.2 and Chapter 3, Note 1; A6, Part II – 7.2.2 and Chapter 3, Note 1; P-ATM – 2.4)

4.1.1 In order for 93 km (50 NM) lateral separation to be applied between aircraft in the New York Oceanic FIR/CTA, the requirements listed below shall be met.

4.1.1.1 The aircraft and Operator must be authorized RNP 10 or RNP 4 by the State of the Operator or the State of Registry, as appropriate. RNP 10 is the minimum navigation specification for the application of 93 km (50 NM) lateral separation.

4.1.1.2 States shall ensure, when granting authorization for RNP 10 or RNP 4, that Operators establish programmes to mitigate the occurrence of large lateral track errors due to equipment malfunction or operational error.

Note.— The ICAO Performance Based Navigation (PBN) Manual Volume I – Concept and Implementation Guidance (Doc 9613) provides guidance on aircraft, operations and maintenance programmes for the initial achievement and continued compliance with the authorized navigation specification. Doc 9613 will be supplemented and updated as required and as new material becomes available.

4.1.1.3 Adequate monitoring of flight operations shall be conducted to provide data to assist in the assessment of the achieved lateral navigation performance of the population in relation to the lateral separation minimum. These data shall include statements of the core of the lateral navigational performance, the proportion greater than one-half the lateral separation minimum and the proportion in the vicinity of the adjacent route centreline as these measures have been shown to have a direct link to the risk of collision. A safety assessment shall be carried out periodically, based on the data collected, to confirm that the safety level continues to be met. Data shall include operational errors due to all causes.

Note.— Monitoring will be conducted in accordance with the appropriate guidance material issued by ICAO. Detailed guidance is contained in the Manual on Airspace Planning Methodology for

the Determination of Separation Minima (Doc 9689) and the Safety Management Manual (Doc 9859).

4.2 Area of Applicability

4.2.1 93 km (50 NM) lateral separation may be applied between aircraft authorized RNP 10 or RNP 4 in all controlled airspace within the New York Oceanic FIR/CTA.

5.0 FLIGHT PLANS

5.1.5 Approval status and aircraft registration

5.1.5.1 All RVSM-approved aircraft intending to operate in the NAT Region shall include the letter “W” in Field 10 of the flight plan. Furthermore, all RVSM-approved aircraft intending to operate in the NAT Region shall include the aircraft registration in Item 18 of the flight plan.

5.1.5.2 All MNPS-approved aircraft intending to operate in the NAT Region shall include the letter “X” in Field 10 of the Flight Plan.

5.1.5.3 All operators authorized RNP 10 or RNP 4 shall include the letter “R” and the letter “Z” in Item 10 of the Filed Flight Plan and NAV/RNP10 or NAV/RNP4, as appropriate, in Item 18.

9.0 SEPARATION OF AIRCRAFT

9.1 Lateral separation
(P-ATM, 5.4.1 and 5.11)

9.1.1 Minimum lateral separation shall be:

a) 93 km (50 NM) between aircraft authorized RNP 10 or RNP 4 operating within the New York Oceanic FIR/CTA except, minimum lateral separation between aircraft transitioning from MNPS airspace in the New York Oceanic FIR/CTA to other MNPS airspace shall be 110 km (60 NM);

b) 110 km (60 NM) between aircraft which meet the minimum navigation performance specifications (MNPS) provided that a portion of the route of the aircraft is within, above, or below MNPS airspace;

c) 167 km (90 NM) between aircraft operating outside the MNPS airspace and at least one aircraft does not meet the MNPS;

- 1) between the Iberian Peninsula and the Azores Islands; and
- 2) between Iceland and points in Scandinavia and in the United Kingdom;

d) 167 km (90 NM) between aircraft not authorized RNP 10 or RNP 4 operating outside MNPS airspace where no portion of the route of the aircraft is within, above, or below the MNPS airspace:

- 1) between the United States or Canada and Bermuda; and
- 2) West of 55°W between the United States, Canada or Bermuda and points in the CAR Region; or

e) 223 km (120 NM) between other aircraft;

except that lower minima in 5.4.1.2 of the PANS-ATM (Doc 4444) may be applied, or further reduced in accordance with 5.11, where the conditions specified in the relevant PANS-ATM provisions are met (see 9.4).”

“Re-number all subsequent paragraphs.”

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